



Ahimsā

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Does Rebirth Make Sense?

BY VENERABLE BHIKKHU BODHI

Newcomers to Buddhism are usually impressed by the clarity, directness, and earthy practicality of the *Dhamma* as embodied in such basic teachings as the Four Noble Truths, the Noble Eightfold Path, and the threefold training. These teachings, as clear as day-light, are accessible to any serious seeker looking for a way beyond suffering. When, however, these seekers encounter the doctrine of rebirth, they often balk, convinced it just does not make sense. At this point, they suspect that the teaching has swerved off course, tumbling from the grand highway of reason into wistfulness and speculation. Even modernist interpreters of Buddhism seem to have trouble taking the rebirth teaching seriously. Some dismiss it as just a piece of cultural baggage, “ancient Indian metaphysics,” that the Buddha retained in deference to the worldview of his age. Others interpret it as a metaphor for the change of mental states, with the realms of rebirth seen as symbols for psychological archetypes. A few critics even question the authenticity of the texts on rebirth, arguing that they must be interpolations.

A quick glance at the Pāli *suttas* would show that none of these claims has much substance. The teaching of rebirth crops up almost everywhere in the Canon, and is so closely bound to a host of other doctrines that to remove it would virtually reduce the *Dhamma* to tatters. Moreover, when the *suttas* speak about rebirth into the five realms — (1) the woeful realms, (2) the animal world, (3) the spirit realm, (4) the human world, and (5) the celestial realms —, they never hint that these terms are meant symbolically. To the contrary, they even say that rebirth occurs “with the breakup of the body, after death,” which clearly

implies that they intend the idea of rebirth to be taken quite literally.

In this essay, I will not be arguing the case for the scientific validity of rebirth. Instead, I wish to show that the idea of rebirth makes sense. I will be contending that it “makes sense” in two ways: first, in that it is intelligible, having meaning both intrinsically and in relation to the *Dhamma* as a whole; and second, in that it helps us “to make sense,” to understand our own place in the world. I will try to establish this in relation to three domains of discourse, the ethical, the ontological, and the soteriological. Do not be intimidated by the big words: the meaning will become clear as we go along.

I

First, the teaching of rebirth makes sense *in relation to ethics*. For early Buddhism, the conception of rebirth is an essential component of its ethical theory, providing an incentive for avoiding evil and doing good. In this context, the doctrine of rebirth is correlated with the principle

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Activities

The Charleston Buddhist Fellowship:

- Conducts informal seminars on Buddhism.
- Prepares and distributes free educational material.

Programs

The Charleston Buddhist Fellowship sponsors the following programs:

- Instructions in meditation.
- *Dhamma* study groups.
- Retreats (at IMC-USA).

There are no fees for any of the activities or programs offered by the organization. Seminars are designed to present basic information about Buddhism to the general public — anyone may attend. However, study groups and meditation instructions are open to members only.

Retreats last ten days and are coordinated through IMC-USA in Westminster, MD (410-346-7889). Fees are set by IMC-USA. Advance registration is required.

One-on-one discussions about one's individual practice or about Buddhism in general are also available upon request. These discussions are accorded confidential treatment. There is no fee for one-on-one discussions. ■

Purpose of the Charleston Buddhist Fellowship

The Charleston Buddhist Fellowship is an educational organization whose purpose is to preserve and promote the original teachings of the Buddha in the West.

The Charleston Buddhist Fellowship actively encourages an ever-deepening process of commitment among Westerners to live a Buddhist way of life in accordance with the original Teachings of the Buddha.

The Charleston Buddhist Fellowship provides free educational material to those who want to learn about Buddhism and about how to put the Teachings of the Buddha into practice.

The goals of the Charleston Buddhist Fellowship are:

1. To provide systematic instruction in the *Dhamma*, based primarily on Pāli sources.
2. To promote practice of the *Dhamma* in daily life.
3. To provide guidance on matters relating to the *Dhamma*, its study, and its practice.
4. To encourage the study of the Pāli language and literature.
5. To maintain close contact with individuals and groups interested in promoting and supporting the foregoing goals. ■

Dhamma Study Groups

An on-going intermediate *Dhamma* study group focusing on the book *Just Seeing* by Cynthia Thatcher is meeting on Sunday mornings at 11:00 AM at the home of Jason Widener (2203 Westchase Drive, West Ashley, SC 29407). E-mail info@charlestonbuddhistfellowship.org or call (843) 321-9190 for the date and time of the next meeting and for directions to Jason's home. The meeting schedule is also posted on the CBF web site: <http://www.charlestonbuddhistfellowship.org>. An introductory *Dhamma* study group starts at 9:00 AM, and there is a meditation session at 10:00 AM. ■

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of *kamma* (Sanskrit *karma*), which asserts that all our morally determinate actions, our wholesome and unwholesome deeds, have an inherent power to bring forth results (*vipāka*) that correspond to the moral quality of those deeds. Taken together, the twin teachings of rebirth and *kamma* show that a principle of moral equilibrium obtains between our actions and the felt quality of our lives, such that morally good deeds produce agreeable results, bad deeds disagreeable results.

It is only too obvious that such moral equilibrium cannot be found within the limits of a single life. We can observe, often poignantly, that morally unscrupulous people might enjoy happiness, esteem, and success, while people who lead lives of the highest integrity are bowed down beneath pain and misery. For the principle of moral equilibrium to work, some type of survival beyond the present life is required, for *kamma* can bring its due retribution only if our individual “streams of consciousness” do not terminate with death. Two different forms of survival are possible: on the one hand, an eternal afterlife in heaven or hell, on the other, a sequence of rebirths. Of these alternatives, the hypothesis of rebirth seems far more compatible with moral justice than an eternal afterlife; for any finite good action, it seems, must eventually exhaust its potency, and no finite bad action, no matter how bad, should warrant eternal damnation.

It may be the case that this insistence on some kind of moral equity is an illusion, an unrealistic demand we superimpose on a universe cold and indifferent to our hopes. There is no logical way to *prove* the validity of rebirth and *kamma*. The materialist might just be right in holding that personal existence comes to an end at death, and with it all prospects for moral justice. Nevertheless, I believe such a thesis flies in the face of one of our deepest moral intuitions, a sense that some kind of moral justice must ultimately prevail. To show that this is so, let us consider two limiting cases of ethically decisive action. As the limiting case of immoral action, let us take Adolf Hitler, who was directly responsible for the dehumanizing deaths of upwards of eighteen million people. As the limiting case of moral action, let us consider a man who sacrifices his

own life to save the lives of total strangers. Now if there is no survival beyond death, both men reap the same ultimate destiny. Before dying, perhaps, Hitler experiences some pangs of despair; the self-sacrificing hero enjoys a few seconds of satisfaction knowing he is performing a noble deed. Then beyond that, there is nothing, except in others’ memories. Both are obliterated, reduced to lifeless flesh and bones.

Now, the materialist might be correct in drawing this conclusion, and in holding that those who believe in survival and retribution are just projecting their own wishes out upon the world. But I think something within us resists consigning both Hitler and our compassionate hero to the same fate. The reason we resist is because we have a deep intuitive sense that a principle of moral justice is at work in the world, regulating the course of events in such a way that our good and bad actions rebound upon ourselves to bring the appropriate fruit. Where the materialist holds that this intuition amounts to nothing more than a projection of our own ideals out upon the world, I would contend that the very fact that we can conceive a demand for moral justice has a significance that is more than merely psychological. However vaguely, our subjective sense of moral justice reflects an objective reality, a principle of moral equilibrium that is not mere projection but is built into the very bedrock of actuality.

The above considerations are not intended to make belief in rebirth a necessary basis for ethics. The Buddha himself does not try to found ethics on the ideas of *kamma* and rebirth, but uses a purely naturalistic type of moral reasoning that does not presuppose personal survival or the working of *kamma*. The gist of his reasoning is simply that we should not mistreat others — by injuring them, stealing their belongings, exploiting them sexually, or deceiving them — because we ourselves are averse to being treated in such ways. Nevertheless, though the Buddha does not found ethics on the theory of rebirth, he does make belief in *kamma* and rebirth a strong inducement to moral behavior. When we recognize that our good and bad actions can rebound upon ourselves, determining our future lives and bringing us happiness or suffering, this gives us a decisive reason to avoid unwholesome conduct and to diligently pursue the good.

The Buddha includes belief in rebirth and *kamma* in his definition of Right View, and their explicit denial in Wrong View. It is not that the desire for the fruits of good *kamma* should be one's main motive for leading a moral life, but rather that acceptance of these teachings inspires and reinforces our commitment to ethical ideals. These twin principles open a window to a wider background against which our pursuit of the moral life unfolds. They show us that our present living conditions, our dispositions and aptitudes, our virtues and faults, result from our actions in previous lives. When we realize that our present conditions reflect our karmic past, we will also realize that our present actions are the legacy that we will transmit to our karmic descendants, that is, to ourselves in future lives. The teaching of rebirth thus enables us to face the future with fortitude, dignity, and courage. If we recognize that no matter how debilitating our present conditions might be, no matter how limiting and degrading, we can still redeem ourselves, we will be spurred to exercise our will for the achievement of our future good. By our present actions of body, speech, and mind, we can transform ourselves, and by transforming ourselves, we can surmount all inner and outer obstacles and advance toward the final goal.

The teachings of *kamma* and rebirth have a still deeper ethical significance than as simple pointers to moral responsibility. They show us not only that our personal lives are shaped by our own karmic past, but also that we live in an ethically meaningful universe. Taken in conjunction, they make the universe *a cosmos*, an orderly, integrated whole, with dimensions of significance that transcend the merely physical. The levels of order that we have access to by direct inspection or scientific investigation do not exhaust all the levels of cosmic order. There is system and pattern, not only in the physical and biological domains, but also in the ethical, and the teachings of *kamma* and rebirth reveal just what that pattern is. Although this ethical order is invisible to our fleshly eyes and cannot be detected by scientific apparatus, this does not mean it is not real. Beyond the range of normal perception, a moral law holds sway over our deeds and, via our deeds, over our destiny. It is just the principle of *kamma*,

operating across the sequence of rebirths, that locks our volitional actions into the dynamics of the cosmos, thus making ethics an expression of the cosmos's own intrinsic orderliness.

II

The teaching of rebirth, taken in conjunction with the doctrine of *kamma*, implies that we live in a morally ordered universe, one in which our morally determinate actions bring forth results that in some way correspond to their own ethical quality. Though the moral law that links our actions with their results cannot be demonstrated experimentally in the same way that physical and chemical laws can be, this does not mean it is not real. It means only that, like quarks and quasars, it operates beyond the threshold of sensory perception. Far from being a mere projection of our subjective ideals, the moral law locks our volitional deeds into an all-embracing cosmic order that is perfectly objective in that it functions independently of our personal desires, views, and beliefs. Thus, when we submit our behavior to the rule of ethics, we are not simply acting in ways that merit moral approval. By conforming to the principles of ethics, we are doing nothing less than aligning ourselves with the Dhamma, the universal law of righteousness and truth which stands at the bedrock of the cosmos.

This brings us to the ontological aspect of the Buddhist teaching on rebirth, its implications for understanding the nature of being. Buddhism sees the process of rebirth as integral to the principle of conditionality that runs through all existence. The sentient universe is regulated by different orders of causation layered in such a way that higher orders of causation can exercise dominion over lower ones. The order of *kamma*, which governs the process of rebirth, is a higher order of causation, and at some level, not within the range of investigation by ordinary empirical means, it intersects with the lower orders of physical and biological causation, bending their energies toward the fulfillment of its own potential. The Buddha does not posit a divine judge who rules over the workings of *kamma*, rewarding and punishing us for our deeds. The karmic process functions autonomously, without a supervisor or director,

entirely through the intrinsic power of volitional action (*cetanā*). Interwoven with other orders in the vast, complex web of conditionality, our deeds produce their consequences just as naturally as seeds in a field bring forth their appropriate herbs and flowers.

To understand how *kamma* can produce its effects across the succession of rebirths, we must invert our normal, everyday conception of the relationship between consciousness and matter. Under the influence of materialistic biases, we assume that material existence is determinative of consciousness. Because we witness bodies being born into this world and observe how the mind matures in tandem with the body, we tacitly take the body to be the foundation of our existence and mind or consciousness an evolutionary offshoot of blind material processes. Matter wins the honored status of “objective reality,” and mind becomes an accidental intruder upon an inherently senseless universe.

From the Buddhist perspective, however, consciousness and the world coexist in a relationship of mutual creation which equally requires both terms. Just as there can be no consciousness without a body to serve as its physical support and a world as its sphere of cognition, so there can be no physical organism and no world without some type of consciousness to constitute them as an organism and world. Though, temporally, neither mind nor matter can be regarded as prior to the other, in terms of practical importance, the Buddha says that mind is the forerunner. Mind is the forerunner, not in the sense that it arises before the body or can exist independently of a physical medium, but in the sense that the body and the world in which we find ourselves reflect our mental activity.

It is mental activity, in the form of volition, that constitutes *kamma*, and it is our stock of *kamma* that steers the stream of consciousness from the past life into a new body. Thus, the Buddha says: “This body, O monks, is old *kamma*, to be seen as generated and fashioned by volition, as something to be felt” (SN 11:37). It is not only the body, as a composite whole, that is the product of past *kamma*, but the sense faculties too (see SN 25:146). The eye, ear, nose, tongue, body-sense, and mind-base are also fashioned by our past

kamma, and thus *kamma* to some degree shapes and influences all our sensory experience. Since *kamma* is ultimately explained as volition (*cetanā*), this means that the particular body with which we are endowed, with all its distinguishing features and faculties of sense, is rooted in our volitional activities in earlier lives. Precisely how past volition can influence the development of the zygote lies beyond the range of scientific explanation, but if the Buddha’s words are to be trusted such an influence must be real.

The channel for the transmission of karmic influence from life to life across the sequence of rebirths is the individual stream of consciousness. Consciousness embraces both phases of our being — that in which we generate fresh *kamma* and that in which we reap the fruits of old *kamma* — and thus in the process of rebirth, consciousness bridges the old and new existences. Consciousness is not a single transmigrating entity, a self or soul, but a stream of evanescent acts of consciousness, each of which arises, briefly subsists, and then passes away. This entire stream, however, though made up of evanescent units, is fused into a unified whole by the causal relations obtaining between all the occasions of consciousness in any individual continuum. At a deep level, each occasion of consciousness inherits from its predecessor the entire karmic legacy of that particular stream; in perishing, it, in turn, passes that content on to its successor, increased by its own novel contribution. Thus, our volitional deeds do not exhaust their full potential in their immediately visible effects. Every volitional deed that we perform, when it passes, leaves behind a subtle imprint stamped upon the onward-flowing stream of consciousness. The deed deposits in the stream of consciousness a seed capable of bearing fruit, of producing a result that matches the ethical quality of the deed.

When we encounter suitable external conditions, the karmic seeds deposited in our mental continuum rise up from their dormant condition and produce their results. The most important function performed by *kamma* is to generate rebirth into an appropriate realm, a realm that provides a field for it to unfold its stored potentials. The bridge between the old existence and the new is, as we said above, the evolving stream of consciousness. It is within this stream of

consciousness that the *kamma* has been created through the exercise of volition; it is this same stream of consciousness, flowing on, that carries the karmic energies into the new existence; and it is again this same stream of consciousness that experiences the result. Conceivably, at the deepest level, all the individual streams of consciousness are integrated into a single all-embracing matrix, so that, beneath the surface of events, the separate karmic accumulations of all living beings crisscross, overlap, and merge. This hypothesis — though speculative — would help account for the strange coincidences we sometimes meet that prick holes in our assumptions of rational order.

The generative function of *kamma* in the production of new existence is described by the Buddha in a short but pithy *sutta* preserved in the *Aṅguttara Nikāya* (AN 3:76). Venerable Ānanda approaches the Master and says, “Venerable Sir, it is said ‘existence, existence’. In what way is there existence?” The Buddha replies: “If there were no *kamma* ripening in the sensory realm, no sense-sphere existence would be discerned. If there were no *kamma* ripening in the form realm, no form-sphere existence would be discerned. If there were no *kamma* ripening in the formless realm, no formless-sphere existence would be discerned. Therefore, Ānanda, *kamma* is the field, consciousness the seed, and craving the moisture for beings obstructed by ignorance and fettered by craving to be established in a new realm of existence, either low (sense-sphere), middling (form-sphere), or high (formless-sphere).”

As long as ignorance (*avijjā*) and craving (*taṇhā*), the twin roots of the round of rebirths, remain intact in our mental continuum, at the time of death, one especially powerful *kamma* will become ascendant and propel the stream of consciousness to the realm of existence that corresponds to its own “vibrational frequency.” When consciousness, as the seed, becomes planted or “established” in that realm, it sprouts forth into the rest of the psychophysical organism, summed up in the expression “name and form” (*nāma-rūpa*). As the organism matures, it provides the site for other past *kammās* to gain the opportunity to produce their results. Then, within this new existence, in response to our various karmically induced experiences, we engage in actions that

engender fresh *kamma* with the capacity to generate still another rebirth. Thereby, the round of existence keeps turning from one life to the next, as the stream of consciousness, swept along by craving and steered by *kamma*, assumes successive modes of embodiment.

The ultimate implication of the Buddha’s teaching on *kamma* and rebirth is that human beings are the final masters of their own destiny. Through our unwholesome deeds, rooted in greed, hatred, and delusion, we create unwholesome *kamma*, the generative cause of unhappy rebirths, of future misery and bondage. Through our wholesome deeds, rooted in generosity, kindness, and wisdom, we beautify our minds and thereby create *kamma* productive of happy rebirths. By using wisdom (*paññā*) to dig more deeply below the superficial face of things, we can uncover the subtle truths hidden by our preoccupation with appearances. Thereby, we can uproot the binding defilements (*kilesas*) and gain the peace of deliverance, the freedom beyond the cycle of *kamma* and its results.

III

The third way in which the teaching on rebirth makes sense is the *soteriological*, a word which means “in relation to final liberation.” According to the Buddha’s teaching, a doctrine of rebirth is not only possible but also necessary, because the goal of the teaching is nothing short of liberation from *saṃsāra*, the round of rebirths. It was dismay at the prospect of endless rebirths, each terminating in old age, sickness, and death, that drove the young prince Siddhattha out from the luxurious life of the palace into the forest as an earnest, homeless mendicant seeking the path to enlightenment: “Being myself subject to birth, old age, sickness, and death, I went forth seeking the birthless, ageless, illness-free, deathless *nibbāna*, the supreme security from bondage” (MN 26.12). His attainment of enlightenment marked not merely the realization of a state of wisdom and inward peace, but the conviction that he had brought the beginningless round of rebirths to an end: “This is my last birth. There is now for me no renewal of existence” (MN 26.18). When he went out to teach the Dhamma, his purpose was to

guide others to the same state of release that he himself had gained. Again, this release was not merely relief from psychological suffering, from pain and distress. It was release from the round of becoming, which means from the round of rebirths. When his first five disciples, the “Bhikkhus of the group of five,” learned the Dhamma from him and brought their practice to fulfillment, they too were able to confirm: “This our last birth. There is now for us no renewal of existence” (MN 26.30). And as the Buddha’s Teaching spread, many young men and women went forth from the household life into homelessness in order to find a way out from the sea of endless birth and death, which is the sea of suffering.

Any religion flourishes against the background of a particular culture and acquires meaning from the concepts prevalent in that culture. Since different epochs and cultures are governed by different conceptual frameworks, different “paradigms,” one might say that a particular religion or spiritual teaching has to be explained in terms of the conceptual framework prevailing in the culture in which it has taken root. This would apply to Buddhism as much as to any other religion, perhaps even more so because of its freedom from rigid dogma. Thus, one might argue, the Buddha expounded the Dhamma against the background of the Indian belief systems of his day, in which the idea of rebirth was generally taken for granted. In our own time, such concepts as rebirth and *kamma* are either alien (as in the West) or outdated (for those in the East who adopt modern Western modes of thought). So, it might be asked, can we not preserve the essence of the Buddha’s teaching as a practical, therapeutic path to liberation from suffering without bringing along the extra cultural baggage passed down from bygone centuries, namely, the idea that equates liberation from suffering with liberation from rebirth? Surely, such basic Buddhist teachings as the Four Noble Truths, dependent origination, and the three characteristics are all meaningful apart from the doctrine of rebirth. Surely, one can practice the Noble Eightfold Path without believing that one’s practice is going to release one from the prospects of coming back to life in this world or any other world.

The reply I would give to this proposal is a twofold one: first, I would say that, if one doubts the teaching of rebirth but still recognizes the validity of such basic Buddhist teachings as the Four Noble Truths, and, if one personally benefits from Buddhist practices, one should certainly adopt Buddhist teachings and practices in whatever way one wishes. If one follows these teachings sincerely, without misrepresenting them, they are bound to confer blessings on one’s own life and on the lives of those within one’s sphere of influence. But, I would continue, this is quite another matter from saying that we can revise the Buddha’s Teaching without diluting it; that we can divest the Buddha’s Teaching of the concept of rebirth without diminishing its depth and meaning. Even such fundamental teachings as the Four Noble Truths and Dependent Origination, if studied closely, will be seen to be intimately connected to the idea of rebirth; for the very idea of suffering or *dukkha*, central to both these teachings, gains a fuller meaning only when it is recognized to be the suffering of repeated birth. This point has been eloquently explained by Ven. Nyanatiloka Mahāthera in his classic *The Word of the Buddha*:

Samsāra — the wheel of existence, lit. the “perpetual wandering” — is the name given in the Pāli scriptures to the sea of life ever restlessly heaving up and down, the symbol of this continuous process of ever again and again being born, growing old, suffering, and dying.... Of this *samsāra*, a single lifetime constitutes only a tiny fraction. Hence, to be able to comprehend the first noble truth, one must let one’s gaze rest upon the *samsāra*, upon this frightful sequence of rebirths, and not merely upon one single lifetime, which, of course, may sometimes be not very painful.

(Nyanatiloka Mahāthera, *The Word of the Buddha*, 17th edition. Kandy: Buddhist Publication Society [2001], p. 18.)

The concept of rebirth relates to the quest for liberation not only in setting the problem with which the Buddha’s teaching deals but also in providing the condition needed for the realization of its final goal. That is, rebirth is not only that

from which we must attain release; perhaps paradoxically, it is also that which makes release possible. What I mean by this seeming paradox is that the final goal of the Dhamma, liberation, is achieved by perfecting certain spiritual qualities, above all the “five spiritual faculties” (*indriya*) of faith, energy, mindfulness, concentration, and wisdom, and other spiritual virtues like generosity, moral discipline, patience, truthfulness, loving-kindness, and equanimity, which, for most people, require many lives to reach maturity. There may be a few people in whom these qualities are so prominent that they can be confident of attaining the final goal within this life itself — perhaps, there are even a few who have already attained it — but for most, the requisite qualities still need further maturation before realization of the final goal becomes a realistic prospect. These faculties have to be “ripened” until they are strong and sharp enough to make the breakthrough to world-transcending liberation, and this requires time; in most cases, it requires long periods of time, much longer than a single lifetime.

When we reflect upon the degree to which such qualities as mindfulness, concentration, and wisdom had been developed by the noble ones of the past, and the degree to which we ourselves have developed them, we will see that a great distance separates us from their attainments. This should not be a cause for dejection or despair; but it is a reminder of the immense amount of work we must do on ourselves to reach the plane of the noble ones. Now, as we strive to practice the Dhamma within this life, we receive a certain amount of “immediate returns” in the form of the greater peace and happiness to which the practice leads. But we also understand that this is not itself the final goal. This is not the great realization that the noble ones celebrate when they utter their lion’s roar. What gives us the confidence that the practices we undertake now, in this present life, are contributing to our ultimate attainment of liberation is our trust in the principle of rebirth. It is the fact that life — or more precisely, the “stream of consciousness” — does not end with our bodily death that assures us that the wholesome qualities we cultivate in this present life are preserved and consolidated within the ongoing sequence of lives that constitutes our

individual identity through *samsāra*. From life to life, the body dies, the stream of consciousness constantly changes; it is not an immortal, changeless self. Yet, while our good and bad deeds bring their desired and undesired results, our wholesome qualities, guided by the Dhamma, governed by the Dhamma, also acquire momentum. Like a snowball rolling down the side of a mountain, which accumulates more and more snow until it sets off an avalanche, our wholesome qualities, our spiritual faculties, gain an energy of their own, which builds up from one life to the next, as long as we continue to practice the Dhamma, until they gain sufficient momentum to break the downward “gravitational pull” of the defilements, of ignorance and craving, of greed, hatred, and delusion. It is then that we can make the breakthrough to liberation, stage by stage, and when we reach the final stage, we end the round of rebirths.

We can thus see that, in relation to the quest for liberation, the state of bondage from which liberation is sought and the ground that makes liberation possible are the same. The state of bondage is the round of rebirths: a condition of suffering marked by aging, sickness, and death, which we undergo over and over as long as we are in the grip of ignorance and craving. But while the deluded, ordinary person without access to the Dhamma remains in bondage to this round of rebirths, those who encounter the Dhamma find the path that leads to final liberation, to the unconditioned peace and freedom of *nibbāna*. Only the noble ones — those who have reached Stream-Entry and the higher stages — are assured that they will gain the final goal. But those who place trust in the Dhamma and earnestly endeavor to cultivate the path can gradually advance towards the ultimate goal. Since only a few will consummate their endeavors in this lifetime, for the others, the process of rebirth becomes a process that enables them to sharpen and strengthen their spiritual faculties. Each successive life guided by the Dhamma preserves the achievements of earlier lives, providing a base from which we can continue our efforts to develop our virtues, purify our minds, and deepen our wisdom. When our moral discipline (*sīla*), concentration (*samādhi*), and wisdom (*paññā*)

reach their culmination, we come to the end of the round of rebirths. However, we could never have reached that goal if there were not a series of rebirths through which our spiritual virtues could have been broadened and deepened. ■

Samsāra

BY FRANCIS STORY

In Buddhism, the Pāli term *samsāra* means, literally, “revolving in the cycle of rebirth”. This cycle of rebirth ranges over the whole of the manifested universe, comprising thirty-one abodes of beings with the various forms and degrees of consciousness appropriate to their condition. Technically, it is not associated either with *rūpa*, “form”, or *arūpa*, “formlessness”, since it includes both conditions. Therefore, its material factors are not an essential part of *samsāra*: it does not mean either the world or the physical universe, as those terms are commonly understood. They are terms relating to a part or aspect of *samsāra* but are not synonymous with it.

Samsāra is a condition: but a condition ordinarily implies a something which is subject to the condition and which can assume fresh conditions from time to time. The philosopher Henri Bergson (1859—1941) maintained that change is the only reality, and this agrees so closely with the Buddhist view of the spatial and temporal universe that we can take it as our first definition of *samsāra*. The only reality of *samsāra*, then, is change, the state of impermanence (*anicca*). There is, let us say, reality of change which corresponds to the relative reality of the universe considered from the standpoint of conventional truth (*sammuti sacca*). On this level, we deal with things as they appear to us in association with other things. If we try to isolate any particular object from its surroundings, we find that we cannot do so. There is nothing that can be predicted about the object except in relation to other objects or ideas in the context of which it has its existence. If we say, for instance, that the object is square, we are dealing with its shape in relation to other shapes known to us. If we say it is hard, we are comparing its tactile effect with that

of other objects which are softer. If we say that it is green, we are contrasting its color with that of other objects which produce a different sensation in our visual consciousness. The whole of our knowledge of the object is, in this sense, subjective. We can never know the object itself, but only its reflection in our own consciousness through the six doors of sensory cognition.

Can we be certain, then, that there is any object in reality? If there is, it must be a thing distinct from our knowledge of it. But we can find no proof of the existence of such a thing. A man who is red-green color blind will see our green object the same color as the red one. Now, supposing the green object we are examining is a leaf. In the course of time, the green leaf withers and becomes red. In this process, its shape, texture, color, and other qualities will undergo transformation, yet we call it the same leaf, although we cannot find any factor of identity between the red, withered leaf and the green, fresh one. In other words, we cannot find any object called a “leaf” which has changed; all we can discover is the process of change.

This can be applied to all phenomena in the universe, including human personality. There is the process of change, but no “thing” that changes. This is the Buddhist concept of *anattā* or “non-self”; but it was also noted by Plato, who pointed out that we cannot have any certain knowledge of qualities which are fluctuating and relative, because the thing which possesses those qualities cannot truly be said to *be* anything at all, since it is always half-way on the road to becoming something else. Plato was compelled to take the Buddhist view that the familiar world must be regarded as a world of *becoming*, rather than a world of *being*, since it never truly *is* anything at all. He therefore concluded, in complete agreement with Buddhism, so far as he went, that we cannot have certain knowledge of the familiar world which is manifested to us through our sense experience, precisely because that world is not wholly real. In Buddhism, there is no word corresponding to “existence”; the Pāli word *bhava* means “becoming”, not “being”.

Plato was driven to the desperate expedient of splitting his concept of the universe into two aspects, transcendence and immanence. These, in Platonic philosophy, divided the universe into two halves, between which it is impossible to establish

any connection. Plato could not define in what way the Real was related to the Unreal, which is not surprising, since, by its very nature, the Real cannot be related to anything. In the same way, the Vedantic idea of the *paramātmā*, the eternal, unchanging “soul” of things, cannot be in any way connected with the phenomenal attributes of human personality such as body, mind, character, disposition, emotions, and other psychic factors. It is clear that, if there were any such eternal, unchanging “soul”, it would bear no relationship whatever to the impermanent, ever-changing human personality. It is therefore vain to imagine that this phenomenal ego possesses a soul-factor which identifies it with the *paramātmā*. The phenomenal ego, just like the leaf mentioned earlier, or any other object of the familiar world, is *anattā* — devoid of any essential being or reality. What we call the “leaf” is a causal process of change, but there is no “thing” that changes.

“The world is imperfect: it is, indeed, shot through with evil and suffering. Moreover, being filled with change and decay it cannot, as Plato insists, be wholly real.” Thus writes Prof. Cyril E. M. Joad (1891—1953) in his book *A Guide to Philosophy* (English Universities Press [1941; reprinted 2007]). Here is the doctrine of *anicca*, *dukkha*, and *anattā* coming from one who, on his own account, had never studied Indian philosophy. Now, *samsāra* is known by these three qualities, impermanence (*anicca*), suffering (*dukkha*), and absence of essential reality (*anattā*). They are qualities, but like the process of change we have been examining, they are qualities without any substratum of a “thing” to possess them. Just as there is change, but nothing (“no thing”) that changes, so there are qualities without any thing to support them.

Idealism claims that there is no existence of the phenomenal world whatever, but that is solely an idea. Materialism maintains that the material world (the material universe) is the only reality, and that mind and consciousness, discrimination and volition are only its by-products (epiphenomena). Both theories involve the same contradiction as Plato’s doctrine of transcendence and immanence, in that each ignores the gulf it creates between the known world and the world of reality. Materialism cannot be true because we have already seen that there is by definition nothing essentially real in

physical phenomena or material substance. Idealism equally cannot be true because it ignores the fact of a common standard of agreement concerning knowledge of the universe. If Idealism were true, it would mean that each individual lives, like a lunatic, in a world of his own mental creation, with its own laws, and there would be no basis of agreement between one man’s view of it and that of another. Idealism attempts to overcome this difficulty by holding that the existence of other individuals is itself only an idea; in other words, that when we take leave of our friend and he goes out of sight and hearing he ceases to exist. But we know he continues to exist independently of our knowledge of him, because, when we next meet him, he can tell us what happened to him in the time between. If he ceased to exist when we parted, we should have to assume that we too ceased to exist the moment we were outside his field of cognition; but we know very well that we continued to exist and that our current of experience, like his, carried on in the interim.

Buddhist philosophy avoids these two extremes of Idealism and Materialism, though it leans, if anything, towards the idealist position. The Buddhist position is anti-substantialist; there is no self-existing matter. Similarly, there is no eternal self-existing quiescent substance known as mind, having a prior existence, which is merely stimulated into activity when brought into contact with the sense objects by means of the sense organs. Mind, according to Theravādin doctrine, is rather a product brought into being by the interaction of the *indriyas* and *viśayas* — the psychic faculties and their range of activity. The word *mano*, “mind”, signifies the act of judging, calculating, and evaluating. Technically, it may be rendered “reason”; but it can also mean simply “mind” in the same sense as *citta*. The Mahāyānists, however, who maintain that the whole universe is the creation of mind and that nothing exists outside the mind (the Cittamātra School), use, in this connection, the word *citta* and not *mano*. Occasionally, the word *viññāṇa* is used in place of *citta*.

The three principal schools of Buddhist thought, from which all later divisions developed, were the Sthaviravādins (Theravādins), the Madhyamikas, and the Yogācārins. The first believed in the existence of the external world and

its constituent parts, the *dhammas*. The second categorically denied the existence of the world and the *dhammas*, and did not even trouble to classify the *dhammas*. This school came nearest to Idealism. The third believed that the universe, though an ejection or reflection of the consciousness, has yet a relative existence and that, in fact, the *dhammas* are but stages in the mind's unfolding.

It is this last school that successfully avoids the pitfalls of the extremes and which comes most into line metaphysically with present knowledge of the universe. The *dhammas*, primary elements of the familiar world, exist independently of our knowledge of them, yet the energy that sustains them through the four stages of (1) arising, (2) maturing, (3) decay, and (4) disappearance, is a mental force, and their existence is only transitory and relative. Thus, the objects of the familiar world which we recognize by sense cognition may not necessarily bear any relationship to the external series of events which produces the impression in our consciousness; yet, nevertheless, the series of events is actually taking place. There is, in fact, a discrete and logically connected sequence of such events taking place all the time in the spatial-temporal complex of *saṃsāra*.

Sammuti sacca, "relative truth", as opposed to *paramattha sacca*, "ultimate truth", has its basis in *avijjā*, "ignorance". In the sense of *sammuti sacca*, the universe, as the Sthaviravādins claimed, is real; in the sense of *paramattha sacca*, it has no existence whatever, as the Madhyamikas claimed. To get a full grasp of the truth, both these points of view have to be taken into account, for both are correct on their own level. Where all are agreed is that thought and volitional action (*kamma*) are the cause of the arising of the *dhammas* both as units and as aggregates. The qualities are present, even though they may be interpreted differently by different individuals, and there is a common level of relative consciousness on which they compose a logical pattern. But neither metaphysics nor science can lift human consciousness out of the grip of *saṃsāra* to be able to view that pattern as a whole and understand its origin. Buddhism frankly admits that this can only be achieved through insight or analytical (*vipassanā*) meditation; it emphatically and unconditionally rejects the claim that ultimate truth (*paramattha sacca*) can be fully understood through dialectics or metaphysical

speculation. This is why the Buddha repeatedly emphasized that his teachings concerned suffering, the cause of suffering, the cessation of suffering, and the path leading to the cessation of suffering and why he intentionally refused to answer metaphysical questions that were not relevant to those objectives. Unfortunately, after his death, all of the metaphysical speculations, dialectics, forms of worship, rites and rituals, and superstitious beliefs that he had fought so hard to dispel and to protect his teachings against came rushing into it.

For ages, philosophers have disputed among themselves concerning the nature of the universe without coming to any definitive conclusion. The Greeks had philosophy, but they did not know what to do with it. Their philosophical speculations always remained a rather uncomfortable appendage to their religious views, which reflected a warm and sensuous love of life itself. The Scholiasts of the Middle Ages wrangled about theological points that today only raise an embarrassed smile. And, if it should seem that the Buddhist concepts of *sammuti sacca* and *paramattha sacca* are only another way of expressing Plato's idea of transcendence and immanence, carrying with it the same difficulties and objections, the answer is that such Buddhist speculations are only an intellectual exercise, a mental game with logical rules played out in the sphere of relative truth. Buddhism shows a higher way to realization — the way of direct insight, free from the fetters of conceptual thinking. Buddhism analyzes the components of the phenomenal universe very precisely and in accordance with the methods used by the best minds throughout the ages, but it does not pretend that this method will do anything more than exhibit the transitory, painful, and illusory nature of *saṃsāra*. "This", says Buddhist philosophy in effect, "is *saṃsāra*, the round of existences created by ignorance. It is relatively true, but to discover that which is absolutely true, the unconditioned (*asāṅkhata*), you have to destroy the relativities of thought and speculation, and the only way to do so is by purifying the mind, tranquilizing its restlessness, and putting an end to its cravings." ■

Adapted from "Saṃsāra" by Francis Story, and published in the anthology of his writings entitled *Dimensions of Buddhist Thought* (Kandy, Sri Lanka: Buddhist Publication Society [1976]), pp. 424–429.

Does The Universe Exist If We're Not Looking?

Eminent physicist John Wheeler (1911—2008) says he has only enough time left to work on one idea: that human consciousness shapes not only the present but the past as well.

BY TIM FOLGER

The world seems to be putting itself together piece by piece on this damp gray morning along the coast of Maine. First, the spruce and white pine trees that cover High Island materialize from the fog, then, the rocky headland, and, finally, the sea, as if the mere act of watching has drawn them all into existence. And that may, indeed, be the case. While this misty genesis unfolds, the island's most eminent resident discusses notions that still perplex him after seven decades in physics, including his gut feeling that the very universe may be constantly emerging from a haze of possibility, that we inhabit a cosmos made real, in part, by our own observations.

John Wheeler, scientist and dreamer, colleague of Albert Einstein and Niels Bohr, mentor to many of today's leading physicists, and the man who chose the name "black hole" to describe the unimaginably dense, light-trapping objects now thought to be common throughout the universe, turned 90 last July. He is one of the last of the towering figures of 20th-century physics, a member of the generation that plumbed the mysteries of quantum mechanics and limned the utmost reaches of space and time. After a lifetime of fundamental contributions in fields ranging from atomic physics to cosmology, Wheeler has concerned himself in his later years with what he calls "ideas for ideas."

"I had a heart attack on January 9, 2001," he says. "I said, 'That's a signal. I only have a limited amount of time left, so I'll concentrate on one question: How come existence?'"

Why does the universe exist? Wheeler believes the quest for an answer to that question inevitably entails wrestling with the implications of one of

the strangest aspects of modern physics: According to the rules of quantum mechanics, our observations influence the universe at the most fundamental levels. The boundary between an objective "world out there" and our own subjective consciousness that seemed so clearly defined in physics before the eerie discoveries of the 20th century blurs in quantum mechanics. When physicists look at the basic constituents of reality — atoms and their innards, or the particles of light called photons — what they see depends on how they have set up their experiment. A physicist's observations determine whether an atom, say, behaves like a fluid wave or a hard particle, or which path it follows in traveling from one point to another. From the quantum perspective, the universe is an extremely interactive place. Wheeler takes the quantum view and runs with it.

As Wheeler voices his thoughts, he laces his fingers behind his large head, leans back onto a sofa, and gazes at the ceiling or perhaps far beyond it. He sits with his back to a wide window. Outside, the fog is beginning to lift on what promises to be a hot summer day. On an end table near the sofa rests a large oval rock, with one half polished black so that its surface resembles the Chinese yin-yang symbol. "That rock is about 200 million years old," says Wheeler. "One revolution of our galaxy."

Although Wheeler's face looks careworn and sober, it becomes almost boyish when he smiles, as he does when I extend a hand to help him from the couch and he says, "Ah, antigravity." Wheeler is short and sturdily built, with sparse white hair. He retains an impish fascination with fireworks — an enthusiasm that cost him part of a finger when he was young — and has, on occasion, lit Roman candles in the corridors of Princeton, where he became a faculty member in 1938 and where he still keeps an office. At one point, a loud bang interrupts our interview. Wheeler's son, who lives on a cliff a few hundred yards away, has fired a small cannon, a gift from Wheeler.

Wheeler is gracious to a fault; one colleague describes him as "a gentleman hidden inside a gentleman." But that courtly demeanor also hides something else: one of the most adventurous minds in physics. Instead of shying away from questions about the meaning of it all, Wheeler relishes the profound and the paradoxical. He was

an early advocate of the anthropic principle, the idea that the universe and the laws of physics are fine-tuned to permit the existence of life. For the past two decades, though, he has pursued a far more provocative idea for an idea, something he calls *genesis by observership*. Our observations, he suggests, might actually contribute to the creation of physical reality. To Wheeler, we are not simply bystanders on a cosmic stage; we are shapers and creators living in a participatory universe.

Wheeler's hunch is that the universe is built like an enormous feedback loop, a loop in which we contribute to the ongoing creation of not just the present and the future but the past as well. To illustrate his idea, he devised what he calls his "delayed-choice experiment," which adds a startling, cosmic variation to a cornerstone of quantum physics: the classic two-slit experiment.

That experiment is exceedingly strange in its own right, even without Wheeler's extra kink thrown in. It illustrates a key principle of quantum mechanics: Light has a dual nature. Sometimes light behaves like a compact particle, a photon; sometimes it seems to behave like a wave spread out in space, just like the ripples in a pond. In the experiment, light — a stream of photons — shines through two parallel slits and hits a strip of photographic film behind the slits. The experiment can be run two ways: with photon detectors right beside each slit that allow physicists to observe the photons as they pass, or with detectors removed, which allows the photons to travel unobserved. When physicists use the photon detectors, the result is unsurprising: Every photon is observed to pass through one slit or the other. The photons, in other words, act like particles.

But when the photon detectors are removed, something weird occurs. One would expect to see two distinct clusters of dots on the film, corresponding to where individual photons hit after randomly passing through one slit or the other. Instead, a pattern of alternating light and dark stripes appears. Such a pattern could be produced only if the photons are behaving like waves, with each individual photon spreading out and surging against both slits at once, like a breaker hitting a jetty. Alternating bright stripes in the pattern on the film show where crests from

those waves overlap; dark stripes indicate that a crest and a trough have canceled each other.

The outcome of the experiment depends on what the physicists try to measure: If they set up detectors beside the slits, the photons act like ordinary particles, always traversing one route or the other, not both at the same time. In that case, the striped pattern doesn't appear on the film. But if the physicists remove the detectors, each photon seems to travel both routes simultaneously, like a tiny wave, producing the striped pattern.

Wheeler has come up with a cosmic scale version of this experiment that has even weirder implications. Where the classic experiment demonstrates that physicists' observations determine the behavior of a photon in the present, Wheeler's version shows that our observations in the present can affect how a photon behaved in the past.

To demonstrate, he sketches a diagram on a scrap of paper. Imagine, he says, a quasar — a very luminous and very remote young galaxy. Now, imagine that there are two other large galaxies between Earth and the quasar. The gravity from massive objects like galaxies can bend light, just as conventional glass lenses do. In Wheeler's experiment, the two huge galaxies substitute for the pair of slits; the quasar is the light source. Just as in the two-slit experiment, light — photons — from the quasar can follow two different paths, past one galaxy or the other.

Suppose that, on Earth, some astronomers decide to observe the quasars. In this case, a telescope plays the role of the photon detector in the two-slit experiment. If the astronomers point a telescope in the direction of one of the two intervening galaxies, they will see photons from the quasar that were deflected by that galaxy; they would get the same result by looking at the other galaxy. But the astronomers could also mimic the second part of the two-slit experiment. By carefully arranging mirrors, they could make photons arriving from the routes around both galaxies strike a piece of photographic film simultaneously. Alternating light and dark bands would appear on the film, identical to the pattern found when photons passed through the two slits.

Here's the odd part. The quasar could be very distant from Earth, with light so faint that its photons hit the piece of film only one at a time.

But the results of the experiment wouldn't change. The striped pattern would still show up, meaning that a lone photon not observed by the telescope traveled both paths toward Earth, even if those paths were separated by many light-years. And that's not all.

By the time the astronomers decide which measurement to make — whether to pin down the photon to one definite route or to have it follow both paths simultaneously — the photon could have already journeyed for billions of years, long before life appeared on Earth. The measurements made *now*, says Wheeler, determine the photon's past. In one case, the astronomers create a past in which a photon took both possible routes from the quasar to Earth. Alternatively, they retroactively force the photon onto one straight trail toward their detector, even though the photon began its jaunt long before any detectors existed.

It would be tempting to dismiss Wheeler's thought experiment as a curious idea, except for one thing: It has been demonstrated in a laboratory. In 1984, physicists at the University of Maryland set up a tabletop version of the delayed choice scenario. Using a light source and an arrangement of mirrors to provide a number of possible photon routes, the physicists were able to show that the paths the photons took were not fixed until the physicists made their measurements, even though those measurements were made after the photons had already left the light source and begun their circuit through the course of mirrors.

Wheeler conjectures we are part of a universe that is a work in progress; we are tiny patches of the universe looking at itself — and building itself. It's not only the future that is still undetermined but the past as well. And by peering back into time, even all the way back to the Big Bang, our present observations select one out of many possible quantum histories for the universe.

Does this mean humans are necessary to the existence of the universe? While conscious observers certainly partake in the creation of the participatory universe envisioned by Wheeler, they are not the only, or even primary, way by which quantum potentials become real. Ordinary matter and radiation play the dominant roles. Wheeler likes to use the example of a high-energy particle released by a radioactive element like radium in Earth's crust. The particle, as with the photons in

the two slit experiment, exists in many possible states at once, traveling in every possible direction, not quite real and solid until it interacts with something, say a piece of mica in Earth's crust. When that happens, one of those many different probable outcomes becomes real. In this case, the mica, not a conscious being, is the object that transforms what might happen into what does happen. The trail of disrupted atoms left in the mica by the high-energy particle becomes part of the real world.

At every moment, in Wheeler's view, the entire universe is filled with such events, where the possible outcomes of countless interactions become real, where the infinite variety inherent in quantum mechanics manifests as a physical cosmos. And we see only a tiny portion of that cosmos. Wheeler suspects that most of the universe consists of huge clouds of uncertainty that have not yet interacted either with a conscious observer or even with some lump of inanimate matter. He sees the universe as a vast arena containing realms where the past is not yet fixed.

Wheeler is the first to admit that this is a mind-stretching idea. It's not even really a theory but more of an intuition about what a final theory of everything might be like. It's a tenuous lead, a clue that the mystery of creation may lie not in the distant past but in the living present. "This point of view is what gives me hope that the question — How come existence? — can be answered," he says.

William Wootters, one of Wheeler's many students and now a professor of physics at Williams College in Williamstown, Massachusetts, sees Wheeler as an almost oracular figure. "I think asking this question — How come existence? is a good thing," Wootters says. "Why not see how far you can stretch? See where that takes you. It's got to generate at least some good ideas, even if the question doesn't get answered. John is interested in the significance of quantum measurement, how it creates an actuality of what was a mere potentiality. He has come to think of that as the essential building block of reality."

In his concern for the nature of quantum measurements, Wheeler is addressing one of the most confounding aspects of modern physics: the relationship between the observations and the outcomes of experiments on quantum systems.

The problem goes back to the earliest days of quantum mechanics and was formulated most famously by the Austrian physicist Erwin Schrödinger, who imagined a Rube Goldberg-type of quantum experiment with a cat.

Put a cat in a closed box, along with a vial of poison gas, a piece of uranium, and a Geiger counter hooked up to a hammer suspended above the gas vial. During the course of the experiment, the radioactive uranium may or may not emit a particle. If the particle is released, the Geiger counter will detect it and send a signal to a mechanism controlling the hammer, which will strike the vial and release the gas, killing the cat. If the particle is not released, the cat will live. Schrödinger asked, What could be known about the cat before opening the box?

If there were no such thing as quantum mechanics, the answer would be simple: The cat is either alive or dead, depending on whether a particle hit the Geiger counter. But in the quantum world, things are not so straightforward. The particle and the cat now form a quantum system consisting of all possible outcomes of the experiment. One outcome includes a dead cat; another, a live one. Neither becomes real until someone opens the box and looks inside. With that observation, an entire consistent sequence of events — the particle jettisoned from the uranium, the release of the poison gas, the cat's death — at once becomes real, giving the appearance of something that has taken weeks to transpire. Stanford University physicist Andrei Linde believes this quantum paradox gets to the heart of Wheeler's idea about the nature of the universe: The principles of quantum mechanics dictate severe limits on the certainty of our knowledge.

"You may ask whether the universe really existed before you start looking at it," he says. "That's the same Schrödinger cat question. And my answer would be that the universe *looks* as if it existed before I started looking at it. When you open the cat's box after a week, you're going to find either a live cat or a smelly piece of meat. You can say that the cat looks as if it were dead or as if it were alive during the whole week. Likewise, when we look at the universe, the best we can say is that it looks as if it were there 10 billion years ago."

Linde believes that Wheeler's intuition of the

participatory nature of reality is probably right. But he differs with Wheeler on one crucial point. Linde believes that conscious observers are an essential component of the universe and cannot be replaced by inanimate objects.

"The universe and the observer exist as a pair," Linde says. "You can say that the universe is there only when there is an observer who can say, Yes, I see the universe there. These small words — *it looks like it was here* — for practical purposes, it may not matter much, but for me, as a human being, I do not know any sense in which I could claim that the universe is here in the absence of observers. We are together, the universe and us. The moment you say that the universe exists without any observers, I cannot make any sense out of that. I cannot imagine a consistent theory of everything that ignores consciousness. A recording device cannot play the role of an observer, because who will read what is written on this recording device? In order for us to see that something happens, and say to one another that something happens, you need to have a universe, you need to have a recording device, and you need to have us. It's not enough for the information to be stored somewhere, completely inaccessible to anybody. It's necessary for somebody to look at it. You need an observer who looks at the universe. In the absence of observers, our universe is dead."

Will Wheeler's question — how come existence? — ever be answered? Wootters is skeptical. "I don't know if human intelligence is capable of answering that question," he says. "We don't expect dogs or ants to be able to figure out everything about the universe. And in the sweep of evolution, I doubt that we're the last word in intelligence. There might be higher levels later. So why should we think we're at the point where we can understand everything? At the same time, I think it's great to ask the question and see how far you can go before you bump into a wall."

Linde is more optimistic. "You know, if you say that we're smart enough to figure everything out, that is a very arrogant thought. If you say that we're not smart enough, that is a very humiliating thought. I come from Russia, where there is a fairy tale about two frogs in a can of sour cream. The frogs were drowning in the cream. There was nothing solid there; they could not jump from the can. One of the frogs understood there was no

hope, and he stopped beating the sour cream with his legs. He just died. He drowned in sour cream. The other one did not want to give up. There was absolutely no way it could change anything, but it just kept kicking and kicking and kicking. And then all of a sudden, the sour cream was churned into butter. Then, the frog stood on the butter and jumped out of the can. So you look at the sour cream and you think, ‘There is no way I can do anything with that.’ But sometimes, unexpected things happen.”

“I’m happy that some people who previously thought this question — How come existence? — was meaningless did not stop us from asking it. We all learned from people like John Wheeler, who asks strange questions and gives strange answers. You may agree or disagree with his answers. But the very fact that he asks these questions, and suggests some plausible — and implausible — answers, it has shaken these

boundaries of what is possible and what is impossible to ask.” And what does the oracle of High Island himself think? Will we ever understand why the universe came into being? “Or at least how,” he says. “Why is a trickier thing.” Wheeler points to the example of Charles Darwin in the 19th century and how he provided a simple explanation — evolution through natural selection — for what seemed an utterly intractable problem: how to explain the origin and diversity of life on Earth. Does Wheeler think that physicists might one day have a similarly clear understanding of the origin of the universe? “Absolutely,” he says. “Absolutely.” ■

Reprinted from *Discover Magazine*, June 2002, pp. 44—48. It has been lightly edited here. John Archibald Wheeler was born on July 9, 1911, in Jacksonville, FL, and passed away on April 13, 2008, in Hightstown, NJ. He was 96 years old at the time of his death.

